[redacted] 25X1

June 20, 1968

[redacted] 25X1

P.O. Box 6788
Fort Davis Station
Washington, D.C. 20020

[redacted] 25X1

Dear Sir:

[redacted] is pleased to present this 25X1
proposal for alignment of your light table under
Task Order 18 of Contract [redacted] Attached are a 25X1
technical description of the work to be performed
and a cost estimate for Phases I and II. This ILLEGIB
estimate is for a single machine.

Performance of this work is based upon delivery of the 9" x 18" grid plate and the calibrated scale from Bausch and Lomb. B&L is currently quoting 11 weeks on the grid plate and 9 weeks on the scale. If you can supply these items, we can begin work in the near future.

If you have any technical questions, please call me. Any contractual questions can be referred to [redacted] 25X1
facility.

[redacted] 25X1

Attach.

WJK:am

DDR-Dupe

[redacted] 25X1

Grid [redacted] thick glass
Adjacent lines within 2½ μ of each other
Two lines over 18" within 10 μ
1" spacing in 9 in direction
2" spacing in 18 in direction
Scale is used as vernier for grid to determine finer deviations such as lead screw cyclic errors.

NOT USING THIS GRID

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EVALUATION OF LIGHT TABLE

TECHNICAL STATEMENT

25X1

PHASE I -- EVALUATION [redacted]

Evaluation of the mensuration instrument in its present state will be accomplished through instrument measurements of a calibrated grid. The standard error in the grid coordinate positions will be less than ±5 microns.

The grid point coordinates read at the instrument (instrument coordinates) will be transformed to the grid plate coordinate system and the residuals determined. If the standard deviation of these residuals is less than ±15 microns over 18", the instrument's mensuration performance is within the stated requirements, and no further effort is required.

25X1

PHASE II -- ERROR ANALYSIS [redacted]

If the evaluation phase indicates the standard error in instrument position determinations is greater than ±15 microns over 18", an error analysis will be conducted to determine the sources of systematic errors. The errors to be investigated will include: periodic leadscrew error, scale and secular leadscrew error, curvature of the ways, and non-perpendicularity of the axes.

Special scales, in addition to the aforementioned grid plate, will be required.

PHASE III -- ALIGNMENT

No estimate is provided for alignment as it is not possible to estimate the effort required to assure the instrument can meet the stated mensuration accuracy requirements. Alignment requirements could vary from simple adjustments, through lapping or shimming, to replacement of the leadscrews and/or bearings.

[redacted]

ILLEGIB

If the desired coordinate reading accuracy cannot be obtained except through the replacement of major components, consideration should be given to compensation of the errors through calibration, i.e., development of a system whereby the "incorrect" instrument coordinates can automatically be transformed to "true" image coordinates. The capability of the instrument to provide coordinate read-out with respect to an arbitrary origin is a complicating factor as the coordinate transformation must be based on instrument coordinates, but this problem can probably be overcome through minor changes in mensuration procedures.

The evaluation procedure (Phase I) must be repeated after alignment to determine if the adjusted instrument can provide coordinate measurements within the stated accuracy requirements (i.e., a standard error of less than $\pm$15 microns).

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